object/information, and the data is accessible only through a GIS map interface and spatial queries.

[0082] Because the event data is related to Anchor Sections and stored in relational tables, event data can be easily queried and summarized using traditional relational queries. Because the Anchor Section data includes a spatial representation for each Anchor Section, the TIS network data model also supports spatial queries. Figure 11 illustrates the process that is normally used to query the TIS data.

[0083] Referring now to Figure 11, the first step is to determine the Anchor Sections in the area of interest. This can be done by either (a) using a spatial query based on a temporary, ad hoc area defined via a map interface 1101 or (b) using a relational query based on jurisdictional areas (e.g., counties, congressional districts, project areas) 1102.

[0084] Next, this collection of Anchor Sections can be further filtered based on event data associated with the Anchor Sections 1103 (e.g., divided highways with speed limit less than 55 mph). Note that this step cannot always be implemented using a traditional relational query; only portions of an Anchor Section may have the attribute of interest, and selections based on multiple attributes used for length-type summary tables require comparison of Anchored Linear Events. The last step is to either (a) summarize event values for the selected Anchor Sections 1104 or (b) map the selected Anchor Sections 1105.

[0085] In many instances, event data will be constant across an Anchor Section, and a comparison operation for event data on an Anchor Section generates

either a True or False response for the entire segment. In some instances, the event data will vary across an Anchor Section, and the result of a comparison is True only for a portion of the Anchor Section. In these cases, special processing logic is implemented to support these types of comparison operations.

[0086] Much of the data that might be accessed through the system is actually maintained by other applications in separate databases. For some such data, query operations that will extract data from these separate databases is supported, but for other data, access to the data is accessible only by launching an appropriate application.

The Road Network

[0087] Initialization of the road network from existing road data may be performed prior to using the system and method. For instance, in the exemplary embodiment, a desired road network is currently maintained as an ArcInfo Link-Node network and will continue to do so after implementation of the exemplary TIS. Therefore, the initialization process must both copy the road network data from the existing ArcInfo formats into a TIS database, but must also update the existing ArcInfo data with additional columns required for maintaining consistency of the ArcInfo and TIS road network data. In order to accomplish this in the context of the GDOT road network, a number of tasks must be accomplished. It will be apparent to one skilled in the art that modifications to columns in existing tabular data and associated query and maintenance methods will vary depending on the architecture of

the existing system. The following description illustrates how these modifications should be implemented if the system and method are to be integrated with the GDOT road network data. It will also be apparent to one skilled in the art that these steps may be easily customized for other existing road networks, where the road networks are defined using various linear referencing methods. In the exemplary embodiment the steps necessary to initialize the road network data are described below:

[0088] 1. Add a column to the ArcInfo Link table(s) to contain the Anchor Section ID of the Anchor Section associated with each Link.

[0089] 2. Analyze the ArcInfo data to ensure that it is consistent with the TIS road centerline model. In particular, note any divided highways that are represented by parallel links.

[0090] 3. Create an entry in the Anchor Section table for each Link in the ArcInfo table, assign an Anchor Section ID to the entry, copy the spatial data (i.e., the polyline) from ArcInfo to the TIS database, and copy any additional data from ArcInfo that is necessary to define the road network (including the segment length, whether this segment is internal to an intersection, whether the segment is a divided roadway).

[0091] 4. Update the ArcInfo Link table with the Anchor Section ID.

[0092] Once this base data is imported, it serves as the basis for the location specifications in the remainder of the data imports. Further, once imported, the TIS